

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in this application:

Listing of Claims

Claim 1 (previously presented): A microscope system for detecting and compensating for changes within an observable image of a microscopic specimen comprising:

- a microscope that defines an illuminating light beam and a detected light beam;
- at least one objective;
- a movable stage;
- a scanning module which guides the illuminating light beam as it scans the specimen generating the detected light beam;
- a detector module having at least one detector detecting at least a part of the detected light beam;
- a computer system receiving detected data from the at least one detector, the computer system comprising a means for recording a multidimensional image having at least two dimensions, a means for calculating signatures of the recorded multidimensional image, and a means for calculating statistical signature parameters of the recorded multidimensional image;
- positioning means coupled to the microscope; and
- a software module sending control signals to the positioning means, wherein the control signals cause a motion of the positioning means, wherein the motion of the positioning means compensates for changes in the observable image of at least some features of the microscopic specimen, wherein the compensation changes the at least some features in the observable image towards their prior state in time, and wherein the control signals are determined on the basis of an inference method from the statistical signature parameters of at least two sequentially recorded multidimensional images.

Claim 2 (canceled)

Claim 3 (previously presented): The microscope system as defined in Claim 1, wherein changes in scan parameters can be determined from the statistical signature parameters; and the scan parameters include at least one of image format, a position of the movable stage, an electronic zoom, an objective selection, galvanometer positions, and spectral scan bands.

Claim 4 (previously presented): The microscope system as defined in Claim 1, wherein the microscope is a scanning microscope.

Claim 5 (original): The microscope system as defined in Claim 4, wherein the scanning microscope is a confocal scanning microscope.

Claim 6 (previously presented): The microscope system as defined in Claim 1, wherein the statistical signature parameters comprise at least one statistical parameter of a signature interpreted as a distribution function, wherein the statistical parameter is mean or variance or moments or quartiles or skewness or median or maximum and minimum.

Claim 7 (currently amended): A method for detecting and compensating for changes within an observable image of a microscope specimen using a microscope, comprising the steps of:

- scanning the specimen with an illuminating light beam and recording multiple image points for generation of a multidimensional image having at least two dimensions;
- calculating signatures of the recorded multidimensional image;
- calculating statistical signature parameters from the recorded signatures;
- determining control signals on the basis of an inference method from the statistical signature parameters of at least two sequentially recorded multidimensional images; and
- sending the control signals to ~~[[the]]~~ a positioning means,

wherein the control signals cause a motion of the positioning means,
wherein the motion of the positioning means compensates for changes in the

observable image of at least some features of the microscopic specimen, and
wherein the compensation changes the at least some features in the observable
image towards their prior state in time.

Claim 8 (canceled)

Claim 9 (previously presented): The method as defined in Claim 7, wherein changes in
scan parameters can be determined from the statistical signature parameters; and the scan
parameters include at least one of image format, a position of the movable stage, an
electronic zoom, an objective selection, galvanometer positions, and spectral scan bands.

Claim 10 (previously presented): The method as defined in Claim 7, wherein the
statistical signature parameters comprise at least one statistical parameter of a signature
interpreted as a distribution function, wherein the statistical parameter is one of: mean,
variance, moments, quartiles, skewness, median, maximum, and minimum.